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(71) Applicant (for all designated States except US): **KONINKLIJKE PHILIPS ELECTRONICS N.V.** [NL/NL];
Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **RIJPKEMA, Edwin**
[NL/NL]; c/o Prof. Holstlaan 6, NL-5656 AA Eindhoven (NL).

(74) Agents: **ELEVELD, Koop, J. et al.**; Prof. Holstlaan 6,
NL-5656 AA Eindhoven (NL).

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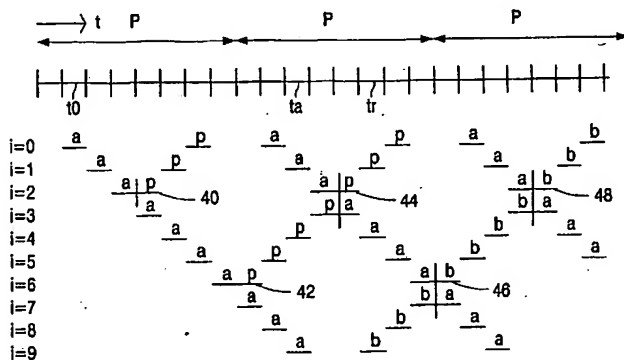
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(54) Title: **DATA PROCESSING CIRCUIT WHEREIN DATA PROCESSING UNITS COMMUNICATE VIA A NETWORK.**



(57) Abstract: Data is processed in a circuit that contains a plurality of data processing units interconnected by a network of node circuits. The node circuits use resources on a time slot multiplexing basis. Stream are started between source data processing units and destination data processing units. Each stream contains messages that occupy the resources in a periodically repeating selection of time-slots. The period of repetition is a network period, which is the same for all the streams. The node circuits forward all the messages of a particular stream through the network along the nodes in a stream specific path assigned to the particular stream. The node circuits decide whether to forward or discard to forward each message dependent on a measure of seniority of the message in its particular stream. A node circuit prevents

forwarding of a more junior message for which insufficient resources are left by forwarding of more senior messages from the particular node circuit. Preferably, in selected return time slots, the node circuits send back confirmations to confirm of successful forwarding of a message. The selected return time-slot is selected in predetermined way so that it is possible to predict in a further node circuit back along the path, from the presence of a further message of the stream at that further node circuit in a crossing time-slot, whether the further message will cross the confirmation at the further node circuit (22) in the crossing time-slot, for example by sending confirmations from those node circuits (22) where the initial message has arrived in one of a series of time-slots that repeats with half the network period. The node circuits detect whether a message of the stream in the node circuits crosses with the confirmation the expected crossing time-slots. The node circuits forward messages only if crossing is detected in the expected time-slots. More preferably, the confirmations are transmitted so that successive confirmations occupy resources periodically with the network period. In this case the destination data processing unit can start a stream of return messages, in time slots that follow the confirmations after the network period. Thus forwarding of the return stream is ensured in advance.

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